though their efficacy is not to be compared with the five hormones just referred to. That we may hope for extremely potent growth-stimulating and maturity-provoking hormones from the anterior hypophysis has been alluded to in the description of Evans' brilliant experimental investigations.* The newer ovarian preparations, standardized biologically by the Allen-Doisey spayed-rat method, bid fair to excel the products formerly available. Ovarian extracts are now being prepared from the placenta and from amniotic fluid since recent researches have demonstrated the presence of the ovarian hormone from these sources. Some of the recent hypodermic preparations of these substances have been found quite efficacious in restoring menstruation, but their use has been somewhat hindered by the painfulness of the injections. A modification which promises to obviate both this pain and the inconvenience of repeated piqures consists in administering the hormone in the form of vaginal pessaries since the vaginal mucosa readily absorbs the extract. As yet, no satisfactory extracts of testicular tissue, pineal body, or thymus have been prepared; and there is indeed some question as to whether the thymus is in truth a ductless gland.

Although adrenalin has proven of invaluable service because of its pharmaco-dynamic properties (as in the treatment of asthma) it has failed signally in the treatment of Addison's Disease, the only malady which we can positively attribute to adrenal inadequacy. It has become more and more apparent that this rather rare and invariably fatal disease results not only from failure on the part of the adrenal medulla, but what is probably of more vital consequence, from lack of hormones from the *cortical* portion of the suprarenals. To date no satisfactory preparation of adrenal cortex has been marketed commercially but my closing message to you is the hopeful news that such a product seems about to be achieved. The encouraging rumors, if one may so term them, emanate from two clinics in this country, namely, the experimental laboratories of Stewart and Rogoff at Western Reserve University, Cleveland, and Koehler's Laboratory in McLean's Clinic of the University of Chicago. The former investigators have conducted important experimental researches on adrenal insufficiency for many years and were finally able to so perfect their technique that dogs survived total extirpation of the adrenals for many weeks, thus producing a state of subacute adrenal deficiency. This had formerly been impossible. An experimental state of chronic deficiency such as we recognize in human beings as Addison's Disease, has not been achieved as yet. From these researches they developed an extract to combat the adrenal deficiency, from the cortex of the suprarenals, which they appropriately named "interrenalin." Preliminary reports indicate that this extract has been useful in combating clinical instances of Addison's Disease. If a truly potent product is eventually obtained, we may reasonably hope to relieve many cases of mild asthenia and hypotension which resemble Addison's Disease, except for the absence of pigmentation and fatal termination.

In sketching these recent developments in endocrinology, the writer does not pretend to have covered all the painstaking labors of the last few years throughout the world in this fascinating field of medicine. It may have been noticed for instance that no mention has been made of experimental or clinical investigations concerning the thyroid gland, principally because the newer contributions have been in the nature of refinement, rather than of arresting novelty. Nor is it claimed that all noteworthy discoveries in the broad field of endocrinology have been given proper recognition. This could hardly be expected in a limited address.

It is hoped nevertheless that these glimpses into an increasingly important field of medicine will have proved of interest to the members of your society.

384 Post Street.

* Since this paper was written Collip has announced the isolation and concentration of an ovary—stimulating hormone from human placenta. He states that it is effective orally. This extract may prove to be identical with the anterior pituitary sex hormone.

CAUSES OF FAILURE IN THE MEDICAL MANAGEMENT OF PEPTIC ULCER*

By FRED H. KRUSE, M. D.
San Francisco

DISCUSSION *by Frederick A. Speik, M. D., Los Angeles; Henry Snure, M. D., Los Angeles; Roland Cummings, M. D., Los Angeles.*

THE treatment and management of peptic ulcer is essentially a medical problem. Even after the surgeon has attempted skillfully to restore the disordered mechanics of the upper gastro-intestinal tract, and has built a way around or boldly attacked the indurated and fibrosed ulcer-bearing tissue, still, the imminence of further complications and the needs of the patient demand vigilant and efficient guidance. I have always liked the expression of Dr. Robert C. Coffey, that surgical interference in peptic ulcer is simply a mechanical measure used as an aid to medical treatment.

There is, or should be, no contest between surgical treatment and medical treatment. Surgical aid is just as indispensable in certain cases of peptic ulcer as it is in diabetes to remove a hopelessly gangrenous appendage.

However, it should be generally recognized that since medical treatment implies the control of a relatively chronic condition or tendency, medical procedures to be successful must be carried out meticulously and in detail, without interruption, and with a sufficiently prolonged and efficient supervision, a supervision that takes ready cognizance of variations in the patient's condition and symptoms.

No regimen which simply includes diet, some powders, and a sheet of written directions will

* Read before the General Medicine Section of the California Medical Association at the fifty-eighth annual session at Coronado, May 6-9, 1929.

ever succeed in the control of peptic ulcer. Furthermore, as in tuberculosis, if we can see the patient early and apply the "cure" the chance of an ultimate complete relief is greatly enhanced. The patients who cannot be controlled, or who do not understand the importance of carrying out the details of the treatment, who were not properly directed at first, or who continually slip from their regimen when better or symptom free, form a group with the highest percentage of failures in the medical management of peptic ulcer.

Of this I am convinced, after analyzing a number of histories of patients going to operation at the University of California Hospital. Surgery then was apparently indicated for several reasons, but, while nearly all stated their trouble had advanced in spite of medical treatment, and were classified as medical failures, in practically no instance did I consider their past regimen had been adequate or sufficient.

The therapy of peptic ulcer has been written and rewritten. There has been no noteworthy contribution to this subject since Sippy's article in 1912. There has been a voluminous literature, many proposals, and much controversy, but the basic essentials of treatment have not been materially altered. Methods have been refined and perfected and details added, but there has been nothing which has revolutionized our thoughts or procedures since then.

We eagerly scan the medical reviews for some new hope or inspiration in the control of essential hypertension, and race off on various therapeutic tangents, only ultimately to resume the essentials of rest, diet, and environmental control. We have our fads and fancies; but, as a group, we realize that the day-to-day control and the persistence of intelligently directed efforts accomplish the most.

ADEQUATE MEDICAL MANAGEMENT

In ulcer management we must have firm convictions and definite aims and procedures, and yet a plan not too inflexible, one adaptable to the type of individual and environment with whom and with which we are dealing.

Adequate medical management implies:

1. Surgical aid in perforating, dangerously penetrating, organically stenosing ulcers, and in the large infiltrating types, with a long chronic history of recurrences, in patients vocationally and psychologically unfitted for prolonged medical regimens. I should like to emphasize, however, that the findings of food retention and large six-hour barium residues do not mean hopeless stenoses until it can be shown that an efficient medical treatment has not or cannot change these conditions. The factors of spasm and tissue edema and swelling about or near an active ulcer must be eliminated. Cases of hemorrhage must be handled upon their individual indications; they are essentially medical cases.

2. *Initial hospital or home rest,* be it only for a week or several weeks until relaxation and the proper mastery of the regimen has been obtained.

3. Diet.

4. Medication.

5. Absolute elimination of ulcer symptoms; and proper bowel control by the method instituted.

6. Removal of contributing etiological factors such as (*a*) focal infections (in the head, abdomen, pelvis, or elsewhere), (*b*) unfavorable habits (in use of food, drink, and tobacco), and (*c*) nervous tension, either mental unrest and fears, or hyperactivity of the sympathetic system.

7. Continued education of the patient as to the nature of his disorder, the pitfalls in its treatment and the dangers of future recurrences, with an adequate plan to meet the first recurring symptoms.

AVOIDANCE OF CHRONICITY

Our most immediate concern in initiating a plan for ulcer management is to overcome the factors that prevent healing of the ulcer, and thus render it chronic. In respect to the above, essentially two schools of thought or theories of procedure have arisen in the treatment of peptic ulcer by medical methods.

The first we might term the "mechanical theory," based on the idea that increased gastric tension, hyperperistalsis, pylorospasm, etc., are the chief influences that prevent the ulcer from healing. Based on these assumptions, we have the so-called starvation plan of treatment with stinted diets and rectal therapy; and the smooth, nonresidue diet, with frequent feedings of Alvarez.

The second, or "chemical theory," conceives that the secretions of the stomach and the resultant mixture with food, on account of chemical irritation and erosion of areas of malnutrition in the peptic region, produce the ulcer and prevent its healing. Therefore, this therapy is based on chemical neutralization by alkalis, the notable exponent of which, of course, is the Sippy treatment.

A third idea that peptic ulcers are a sensitization phenomena and form from blebs and areas of local edema due to hypersensitization to certain irritants (endogenous or exogenous) has led to foreign protein therapy, especially milk injections, novoprotin, and to efforts along the line of specific desensitization.

As yet, no conclusive evidence of the efficacy of this method of treatment has been produced.

Whoever attempts to treat peptic ulcer should have positive views on the proper method of procedure and definite aims or ends to attain as a check of the value of his therapy. Too much modification in the plan, too ready acquiescence to the whims of the patient, and the changing from one conception to another, lay a ready foundation for medical treatment failure.

I would establish as a first rule that the regimen employed should in a few days, a week or so, during which readjustments can be made, afford complete relief of the major symptoms and that thereafter these symptoms should not recur without adequate explanation.

In my own experience I have never seen a peptic ulcer with any history of chronicity, or previous attacks, yield to any method of treatment that did not include a more or less complete neutralization of the acid-eroding mixture which forms in the stomach after food, either by alkalis or by the aid of a gastro-enterostomy and the protection of the ulcer-bearing area in this way for many months.

Undoubtedly, the control of the mechanical factors are of the greatest importance, particularly that of spasm, and other therapy besides alkalinization should be directed to that end with especial reference to nervous tension and mental unrest.

COMMON ERRORS IN TECHNIQUE OF MEDICAL MANAGEMENT

This paper is not intended to be an exposition of medical management of peptic ulcer, but to point out wherein failure commonly occurs in the successful carrying out of a regimen such as that given above.

Alkalinization occupies a place of prominence in most treatments and, to my mind, it is most essential. It should be so regulated that, combined with rest and diet, absolute relief of symptoms of distress should follow speedily.

CHOICE OF ALKALINE POWDER

To accomplish this, the kind and quantity of alkaline powder used must vary with the patient, and we must keep constantly in mind our knowledge of the effects of the various alkalis, constitutionally and locally, on the gastro-intestinal tract. Soda bicarbonate, magnesium oxid, calcium carbonate, bismuth subcarbonate and subnitrate, and tertiary calcium phosphate and tertiary magnesium have proved the most useful. The first three, in various combinations, are most often employed. But our patients react quite differently to these. Magnesia may quickly produce a colitis with complicating symptoms of bowel distress, and the quantity should be varied to produce only one or two bowel movements daily. Calcium carbonate renders the stools bulky, and in many instances the dejecta are passed as hard, irritating balls, or rectal impactions ensue. This tendency varies with different individuals, and therefore the quantity given must be regulated by the reaction. Bismuth may act in a somewhat similar manner, and it may obstinately constipate many people. Therefore, as we observe the patient, distress symptoms must be segregated into ulcer distress, uncontrolled, and bowel disturbance that calls for proper variations in the formula of our alkaline powders. I have had many patients ready to stop medical treatment after alkalinization on account of abdominal distress due to a deranged colon, which they ascribed to their ulcer, when the actual ulcer symptoms were absolutely gone. Of course, the elimination of these problems requires time, patience and perseverance, and a careful analysis of the day to day distress and symptoms.

TIME OF ADMINISTRATION

This analysis will also bring out any period of the day in which a constantly recurring distress symptom of pain, gnawing, or gas collection occurs which, if consistently repeated, is of great significance. Variations of intermediate feedings (such as milk and cream) and an increase in the amount of alkalinization just before the period of onset of distress is then indicated. This constant study is very necessary at first, and we should not be satisfied until we have secured general abdominal comfort. Occasionally the tube should be passed at different times in the day, with the patient on his regular regimen, and the sufficiency of neutralization determined.

INTOLERANCE TO ALKALINE POWDER

Besides the really serious cases of alkalosis, which may occur in certain arteriosclerotic or nephritic individuals, there frequently are found cases of more or less mild intolerance to the various more soluble alkalis. These people say the powders "make them sick" and complain of headache, distaste for milk, subjective numbness and tingling of the hands and feet, aching of the muscles and general nervousness. Urine and blood nitrogen studies should be made in such cases, and if necessary the tertiary calcium phosphate or tertiary magnesium should be employed. In many of these cases the intolerance to alkalis is only temporary. These symptoms generally appear in the first two weeks or not at all, except in the arteriorenal cases. Regular urine and blood pressure readings should be made from time to time on all cases under treatment.

In analyzing the past treatment of the patients whom we found necessary to send to surgery in the University Hospital, many of whom labeled themselves as medical failures, I found almost invariably this careful analysis of the day to day distress and regulation of the alkalinization accordingly, entirely lacking. Furthermore, the handling of their night periods was generally entirely inadequate. Probably in most of these patients the free hydrochloric acid had been allowed to remain in the stomach in appreciable quantities, and therefore the ulcer would not heal.

All too frequently careful questioning elicited the fact that after a month or two of treatment with consequent relief, the plan was stopped, to be resumed when the symptoms returned and discontinued when the symptoms left.

DISCUSSION OF PLAN IN TREATMENT

Night Rest.—It is conceded that if we could starve our patients long enough, without serious constitutional results, most peptic ulcers would heal without further treatment. Since this is impracticable, we should seize the opportunity of giving as much rest as possible to the stomach at night. The longer we can keep it empty the better. Yet how infrequently this is done. Patients are given milk or a small meal before going to bed,

and on awakening in the night they take milk or crackers again.

Of course, we are aware that the Sippy treatment calls for emptying the stomach every night before retiring. The hospital cases and patients facing an alternative of lavage or an operation accede to this willingly enough for a while, but the average ambulatory case, frequently a high-strung business man or society woman, will not carry out such a procedure unless compelled to do so by fear or increasing distress.

And yet we desire to insure stomach emptying with a more or less neutral food mixture. It therefore seems irrational to prescribe night feedings. Instead the last meal should be taken as early as possible, and if possible it should be the lightest meal. Following this, sufficient alkalinization should be instituted to keep the patient absolutely symptom free in the night.

All food after the evening meal should be forbidden, even milk. If there is night distress an additional powder should be prescribed. If this night distress persists, then lavage must be insisted upon and kept up regularly. This plan should be carried out regularly, without compromise, in cases with much residue or night hypersecretion with consequent pain, and the stomach should be left empty, or with a weak alkaline, belladonna solution in it. If an excessive night secretion is present, the stomach should again be washed out at midnight, preceded by sufficient alkalinization.

Frequently, ambulatory cases that have been symptom free backslide, due to home or business disturbances, and no variation in powders or diet will suffice to secure control. A strict regimen in a hospital, with nightly lavage, for two to three weeks (later continued at home) generally overcomes the difficulties. Several times a fluoroscopic study, made at the beginning of this period, showed considerable six-hour retention and an apparently hopeless situation for medical treatment which, when repeated, two or three weeks later showed no residue and very little deformity, with the patient absolutely symptom free.

INITIAL HOSPITALIZATION

In beginning treatment, hospitalization is best, as it affords an environmental change, complete rest, and better means of securing control and teaching management. It also saves time in observation. In active ulcer cases with much distress or certain complications, no other alternative should be permitted. However, there are some cases who psychologically react badly to hospitals, and others, upon whom the financial burden falls too heavily who may be efficiently treated at home in bed.

Whether we like it or not, a number of our patients remain ambulatory from the start and most of them do quite well. They are the milder cases, of course, with an annoying recurring dyspepsia, seen frequently in active business men. Occult blood is usually not present in their stools. Curtailment of their activities, longer hours in bed at night, week-end rests, combined with the general plan described above, is in most cases sufficient.

DIET

The diet has been too frequently discussed and outlined in the various weeks and stages of treatment to warrant particular comment here. In general, the meals should be small and simple with relatively few food selections for any one meal, and these should be foods that leave the stomach quickly, such as carbohydrates, vegetable purees, and foods which have the power of entering into immediate combination with the hydrochloric acid, thus producing a neutralizing effect. Milk, 20 per cent cream, and eggs are especially potent in this respect. Minced and ground meats are generally well tolerated. Meat extracts should not be allowed. Where milk is incompatible I have found orange juice and egg albumen useful. Finally, any bland diet, such as the smooth diet of Alvarez, may be followed. As a rule the evening meal should be light to promote the night fast. Our failures have not been attributable so much to wrong diet as to other factors of management.

MEDICATION

The chief drugs used are atropin and belladonna, and the various alkalis, including bismuth. Recently adrenalin and luminal in small doses, combined with belladonna, has been extremely useful in certain nervous cases with mental unrest, insomnia, and a generally hypertonic sympathetic nervous system.

ELIMINATION OF ULCER SYMPTOMS

Finally, to avoid failure, we should see our patient often enough and analyze his symptoms carefully enough to make sure that all ulcer distress and irritation have disappeared. If not, our regimen must be altered to accomplish this; whether it means different feedings, increased alkalinization, removal of nervous factors, bed rest, or stomach lavage.

If we permit a five o'clock distress to recur regularly, no matter how apparently trivial, or a night disturbance to be handled as the patient sees fit, undoubtedly insidious progression is occurring in the ulcer and failure is imminent. We must establish abdominal comfort as our criterion of success.

REMOVAL OF CONTRIBUTING ETIOLOGICAL INFLUENCES

When the regimen is well established and the symptoms are under control, any probable etiological influences should be removed.

Root infections in teeth, pyorrhea, and other forms of gingivitis should be eradicated. Questionable tonsils should be removed and sinus infections should be treated. I have been rather skeptical of the advantage to be obtained by appendectomy, unless a very definite infection could be proved, and then have been in favor of removing the appendix more because it was potentially dangerous than for any effect it might have on the ulcer.

Frequently, in the course of our study of an ulcer case, we unearth a quiescent gall bladder with one or more stones. I have two or three such cases now, with definite ulcers, two duodenal and one gastric, completely free of all digestive symptoms, yet with definitely diseased gall bladders, without any clinical signs. I suppose that ultimately they should be removed *per se,* but as to their relationship to the ulcer, I am in doubt.

Prostatic infections should be treated properly.

In pelvic inflammatory disease in women, associated with a peptic ulcer, again the question arises, as in appendix and gall-bladder involvements, whether we should proceed more radically with surgery than we would if the local condition alone were found. Concrete evidence of the influence of these conditions on peptic ulcer is hard to obtain, but the possibilities are intriguing.

Along the same line we must do our best with any constitutional diseases, such as diabetes, nephritis, syphilis, and any deficiency states, but for this we may be thankful that comparatively few of our ulcer cases include any such complications.

On the other hand, I have come to believe that the nervous system exerts a profound influence both as a causative and exacerbating factor in the pathology of ulcer. So-called pylorospasm and hyperacidity without a demonstrable lesion is frequently seen, and while many of these cases may be due to a latent adjacent gall-bladder disease or to other abdominal pathology, or even to a non-visible mucous membrane erosion of the peptic area, by far the greater number must be put down as functional disturbances. What of their future if uncontrolled? Does ulcer later develop in any of these?

While exact proof has been lacking, I have certainly seen active, recent ulcers come to light in individuals previously free of any especial dyspeptic symptoms, following unusual mental stress and strain, during which period there had been excessive keying up of the whole nervous system: hurry, worry and fatigue, without any appreciable time for relaxation or let-down. In most of these cases, meals have been bolted or not taken, and, as they describe it, "the stomach has been tight and knotted up." High pressure business and professional men, women active socially or in the business world, are the functional sufferers, and perhaps the potential developers of peptic ulcer. Excessive contractions and spasm of the upper gastro-intestinal tract, with deep waves and pylorospasm and increased secretion, can be readily demonstrated by the fluoroscope, without deformity of outline. The duodenal syndrome, to a degree, is present; why not later the ulcer?

The shock of an accident frequently leaves this disturbance in its wake. In the past year I have seen four or five industrial accident cases with the above findings: spasm, hyperacidity, and an almost perfect ulcer symptomatology, but without demonstrable deformity, clearly on a nervous tension basis. On the other hand, I can recall the discovery of duodenal ulcers for the first time, after unusually protracted mental and nervous strain, in patients of long acquaintance, but who had never previously complained of digestive disorders.

Perhaps the ulcer diathesis was latent in these individuals and needed but a nervous disturbance to bring it forth.

At any rate, many of our milder, ambulatory cases could very well emanate in this manner, and certainly when once established, an ulcer may be definitely exacerbated by these factors of nervous irritation and strain.

Therefore, not only in the prophylaxis, but in the therapy of ulcer must we reckon with nervous influences. Many failures in the cure result because we do not properly understand or influence the psychology of such individuals. The business and home environment, daily contacts, the mental unrest and fears, the continual drive without sufficient relaxation, as well as habits of eating and sleeping, need our attention, and radical alterations in the manner of living should be brought about if indicated.

We have previously given atropin and belladonna for local spasm, but, in addition, I have found small, regular doses of luminal of great assistance in this type of case; or in some cases, bromural, and often a mild hypnotic at night.

EDUCATION OF PATIENT

Finally, I believe it is essential to educate the patient with peptic ulcer as to the nature of his disorder, its intrinsic chronicity, tendency to insidious exacerbation, and even recurrence after two or three years of freedom. This teaching should go on, as in tuberculosis or diabetes, until the patient has the viewpoint of the physician and understands how to combat his problems.

To do this requires periods of explanation. Most patients start with the idea that it is as simple to cut out an ulcer as it is to cut out an appendix, or, if not surgically inclined, they will invariably slip away and drop their regimen with the first remission of symptoms, unless they have been taught that a recurrence is sure to follow if they do. Facts that are self-evident to us must be meticulously conveyed to the patient. The importance of regular contact with his physician for at least a year must be made clear. Without desiring to produce a hypochondriac, we are desirous to develop some self-analysis of the patient's digestive feelings, to teach him what they may mean, how to act, or when to seek advice. Reassurance, dissipation of cancer phobias, and an insight into future possibilities are essential. Unless we can give him, early, a pretty general knowledge of his problems and our own aims, he will leave his physician with his first reaction of distaste to the whole treatment, and he may do it anyhow.

I have found it useful to supplement these verbal instructions with a typed list embodying

the above principles, a summary of technique and time to be spent in carrying out a medical plan, and very definite rules for his future guidance after his present ulcer has healed.

384 Post Street.

DISCUSSION

FREDERICK A. SPEIK, M. D. (427 West Fifth Street, Los Angeles).—Although gastric and duodenal ulcers heal under proper medical treatment, we must be constantly on the alert for associated pathology. Intelligent observation, with frequent x-ray examinations, shows that the biggest and deepest ulcers gradually get smaller until they disappear, and the patient is symptom free. However, many cases in which lesions of the portal lymphatic system exist may have a return of symptoms or a recurrence of ulcer, because these lesions may be foci of infection in the gall bladder or appendix.

Sippy stated that, in order to treat peptic ulcer intelligently, it is necessary to determine the age, the type, the location and complication of ulcer. It is necessary to go further and determine if there are any lesions of the portal system, such as cholecystitis, appendicitis, pancreatitis, hepatitis, or peritoneal adhesions.

The taking out of an acute or chronic appendix does not cure the ulcer; note the number of cases in the table below who had an appendectomy before an ulcer was discovered. This is one reason why patients do not always get well following an appendectomy. There is pathology elsewhere.

Patients with foci of infection in the portal lymphatic system should have them removed at earliest recognition. If physicians are on the alert for associated ulcer pathology, the diagnosis will be made more promptly, and better end-results will be had.

The lymphatic drainage of the stomach, liver, pancreas, and appendix are anatomically closely connected.

In 60 per cent of cases reported above, gastric duodenal ulcer had associated pathology in the liver, the pancreas, the gall bladder, and the appendix.

Healed ulcer will not leave the patient symptom free unless the associated pathology is eradicated.

In a review of 156 cases treated in the last twenty-one months, the records show:

Appendix removed prior to diagnosis of ulcer	35
Chronic appendix diagnosed during management	28
Appendix out during management	8
Appendix out following treatment	6
Gall bladder removed prior to diagnosis of ulcer	6
Gall bladder diagnosed chronic during management	26
Gall bladder out during management	2
Gall bladder with stones	3
	114

That is, 114 cases out of 156 cases showing associated pathological conditions.

❦

HENRY SNURE, M. D. (1501 South Figueroa Street, Los Angeles).—The causes of failure in medical management of peptic ulcer are as interesting to the roentgenologist as to the internist. It is not unusual to re-ray the same patient at yearly intervals, and for a different referring physician or surgeon each time, any one of the latter having a high percentage of success in the management of ulcer. These cases seem to fall largely in the class of nervous, high-strung patients who cannot be controlled, patients who are otherwise intelligent and have sufficient means to carry out any type of treatment suggested.

It would seem the failures due to oversight of associated lesions, as brought out by both Doctor Kruse and Doctor Speik, is gradually being diminished, particularly since fluoroscopic examination has been supplemented by careful study with a series of films which often show biliary and urinary calculi, hydronephrosis, focal infections in distant organs, etc. At the February meeting of the College of Physicians, Doctor Alvarez brought out in his paper on "Gastro-Intestinal Troubles That Now Go Undiagnosed" just how difficult this is. Out of five hundred consecutive cases with gastro-intestinal symptoms it was shown by extensive tests, operations, and postmortem findings that only forty-two had duodenal ulcer and six gastric ulcer, yet if the textbooks on the subject are to be believed, more of them should have been ulcers.

The roentgen ray also gives one a very good idea of the mechanical result of surgical interference. It is surprising how a new opening in the stomach wall that appeared to be larger than necessary at time of operation can close up or refuse to function; at times a roentgen-ray examination of a second operation may not reveal the cause of this failure to function. Repeated roentgen-ray examinations, as suggested by Doctor Speik, to note progress of treatment are important.

As a roentgenologist, looking at the matter from the side lines, it would seem that Doctor Kruse's requirement of rigid adherence to medical management as outlined in his paper promises the greatest measure of success.

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ROLAND CUMMINGS, M. D. (523 West Sixth Street, Los Angeles).—The almost universal error in treating peptic ulcer is the lack of time taken to produce the cure. This disease is an ulceration of an organ that cannot be put at rest. Tuberculosis is the ulceration of an organ that cannot be put at rest. Tuberculosis was not properly treated until physicians learned that the patient must continue his cure for two years after all symptoms and active signs had disappeared.

The same condition applies to peptic ulcer. Unless the patient continues his cure six to eighteen months after being symptom free, there will be a recurrence. The length of time to continue the cure depends upon the extent of ulceration.

There are many different diets recommended, but they have two common factors: (1) Lessening of acidity. (2) Rapid emptying of the stomach.

Most diets are accompanied by frequent feedings, which prevent so much pylorospasm.

There is much discussion about the use of alkalis, many physicians believing they have little if any part in the treatment of ulcer. I would feel quite lost without them, but have been able to theorize only as to their effects. I am impressed that they lessen the emptying time of the stomach as well as neutralize acid. The following prescription has served me best:

Rx: Bismuthi subnitratis
Magnesii usta et levis, aa 1 oz.
Sodii bicarb., 4 oz.
Sig. 1 dram six times daily in water.

Inasmuch as constipation is fatal to the cure of ulcer, this prescription is especially good, as the magnesia keeps the bowels free, the amount being adjusted to meet the need. I am impressed that there is something more in these alkali that assist in a cure than merely neutralization of acids and hastened emptying time, as I have seen definite benefit where acidity was very low. What this beneficial factor is, I cannot say.

The treatment of uncomplicated duodenal ulcer is very simple and should never require surgery. With gastric ulcer there is a very different story. Excision of the ulcer should be resorted to if it is at all deep.